



Climate change and waterborne diarrhoea in northern India: Impacts and adaptation strategies

Author(s): Moors E, Singh T, Siderius C, Balakrishnan S, Mishra A
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Abstract:

Although several studies show the vulnerability of human health to climate change, a clear comprehensive quantification of the increased health risks attributable to climate change is lacking. Even more complicated are assessments of adaptation measures for this sector. We discuss the impact of climate change on diarrhoea as a representative of a waterborne infectious disease affecting human health in the Ganges basin of northern India. A conceptual framework is presented for climate exposure response relationships based on studies from different countries, as empirical studies and appropriate epidemiological data sets for India are lacking. Four climate variables are included: temperature, increased/extreme precipitation, decreased precipitation/droughts and relative humidity. Applying the conceptual framework to the latest regional climate projections for northern India shows increases between present and future (2040s), varying spatially from no change to an increase of 21% in diarrhoea incidences, with 13.1% increase on average for the Ganges basin. We discuss three types of measures against diarrhoeal disease: reactive actions, preventive actions and national policy options. Preventive actions have the potential to counterbalance this expected increase. However, given the limited progress in reducing incidences over the past decade concerted actions and effective implementation and integration of existing policies are needed.

Source: <http://dx.doi.org/10.1016/j.scitotenv.2013.07.021>

Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Other Climate Scenario

Other Climate Scenario: SRES A1B

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

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Extreme Weather Event, Food/Water Quality, Meteorological Factors, Precipitation, Temperature

Extreme Weather Event: Drought

Food/Water Quality: Pathogen

Temperature: Fluctuations

Geographic Feature: 

resource focuses on specific type of geography

Freshwater, None or Unspecified, Tropical, Other Geographical Feature

Other Geographical Feature : sub-tropical

Geographic Location: 

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: India

Health Impact: 

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Other Diarrheal Disease

Intervention: 

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: 

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: 

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Resource Type: 

format or standard characteristic of resource

Research Article

Timescale: 

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time period studied

Medium-Term (10-50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content